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CAREER PATHS

Where are they now?

Despite obstacles, many of those who kept Naturejobs postdoc and graduate journals in the past six years have been successful — but not always in ways they had anticipated.

BY PAUL SMAGLIK

Starting in 2004, *Naturejobs* began publishing accounts from graduate students of their hopes, frustrations, scientific victories and career defeats. We selected four journal keepers through a contest that attracted hundreds of applicants from dozens of countries. In 2007, we launched a similar postdoc journal. One writer called her scientific career a “winding road”. Today, many of those writers would add that the road also presents potholes, detours and dead ends.

Career and life decisions may have roughened the road, but all are making their way — some

taking less conventional routes than others. Of the 24 graduates and postdocs who kept journals between 2004 and 2009, we found the status of 21. Twelve — of whom five are still postdocs — are working as researchers at academic institutions or non-profit organizations. Of the other nine, three went into industry, one into government, three are engaged in science writing or communications and two left science altogether. But all shared a willingness to accept personal sacrifice and an ability to adapt to changing circumstances.

Despite the long odds, some former journal keepers have found academic positions. Tobias Langenhan, who wrote a graduate journal in

2005 while studying for a master's degree in neuroscience at the University of Oxford, UK, feels fortunate to have landed an independent position without doing a postdoc; he took a job at the University of Würzburg in Germany, where he went to medical school before his master's and PhD. But Langenhan says that he now faces a set of demands that he didn't anticipate when he started the journal. “The amount of time and effort that has gone into grant writing and planning out a scientific strategy for the next five years,” he says, is something that he “definitely didn't expect back then”.

Sidney Omelon wrote her graduate journal in 2004 while doing a biomedical ▶

► engineering PhD at the University of Toronto in Canada. She was well aware of the poor prospects in academia — so much so that she made contingency plans for industry. But her ‘plan A’ panned out, with a job as an assistant professor of chemical and biological engineering at the University of Ottawa in Canada. Yet Omelon now worries about the personal sacrifices she has made along the way — ranging from affected relationships to a lapsed interest in rowing. “I worry that a combination of curiosity and stubbornness has brought my scientific career forward while leaving behind other aspects of my life,” she says.

Maria Ocampo-Hafalla, who wrote a postdoc journal in 2007–08, is still working at Cancer Research UK in London. Her dreams of a university position remain alive, but she is approaching something of a crossroads as her five-year postdoc stint — including an extension for maternity leave — nears its end. Her husband is further along in his own scientific training, and Ocampo-Hafalla plans to use the Christmas holiday to ask herself some tough questions. Should she do another postdoc, in the hope of one day landing an academic position? If so, it will have to be in or near London, where her husband is now training. Or should she pursue another line of work, such as communication or policy? Ocampo-Hafalla isn’t sure that she is ready to sacrifice family time to run experiments well into the night. “I don’t necessarily want to be a lab rat, now that I’m a mother,” she says. Still, it will be hard to let go of her research dreams. She has been doing bench work since she was 16.

INDUSTRY AIMS

One former journal writer who tested the academic waters didn’t like what she found. “I was surprised at how much I disliked the academic interview process and the academic positions,” says Moira Sheehan, who kept a journal in 2007–08 while a postdoc studying plant breeding at Cornell University in Ithaca, New York. She recalls one university where an interview involved repeated questions about family details, and another at which a lack of start-up funds and insufficient equipment and facilities would have quashed any chances of getting enough work published to gain a competitive tenured position in the time allotted by the university.

For Sheehan, industry was the right decision both personally and professionally, but it required some juggling. She is now a research scientist and project manager at Nature Source Genetics, a computational genomics company based in Ithaca, but while in the academic system she dealt with repeated funding shortfalls. When Sheehan’s own grant ran out while she was a postdoc, her adviser supported her for eight months until he, too, fell short of money and had to let her go. She considered changing fields completely to get funding, but soon secured a research-associate position at

Cornell, focusing on maize research — a post that would let her complete a journal paper. Four months later, a grant she had written under her former adviser came through; he offered to take her back, but she stayed with her new lab.

“The hardest part of the postdoc was how it ended, and the spectre of unrealized potential I had in that lab, in that career path and field,” says Sheehan, who wonders whether earlier publication of the journal paper might have earned her and her adviser a grant. “I never had a chance to make more out of it, which would have given me a better foundation for

he doesn’t have to worry about funding or tenure. “I want to live a life — not just be grappling for grants,” he says. He wouldn’t mind doing more teaching — but he doesn’t want to do a postdoc to earn that honour.

ALTERNATIVE ROUTES

Milan de Vries, who kept a graduate journal in 2006 while studying for a PhD in molecular biology at the Massachusetts Institute of Technology (MIT) in Cambridge, recalls how a random e-mail oversight during his first year as a postdoc at MIT added to his considerable anxiety about securing a university post. A postdoc colleague had applied for a faculty position at another research university and had received a form-letter e-mail rejection. Whoever had sent it had mistakenly selected ‘cc’ rather than ‘bcc’, so de Vries’s colleague could see the names and institutions of the other spurned applicants — all 300 or so of them. “That’s not a very encouraging result,” says de Vries, who knew that even those who do land a job still have to secure funding and tenure.

Meanwhile, de Vries had been nurturing an interest in politics, through a group of friends who were supporting Barack Obama’s US presidential campaign in 2008. That eventually led him to his current job as campaign manager at MoveOn.org, a grass-roots political action group. De Vries’s position there has some parallels to a research job in hard science: both focus on databases and project management. “A database containing people’s political info versus a database with DNA info is basically the same,” he says.

Peter Jordan, who kept a postdoc journal in 2007 while at the US National Institute for Diabetes and Digestive and Kidney Diseases in Bethesda, Maryland, made an even more extreme move: to theology. He had felt slightly unsatisfied with his PhD work on mathematical modelling of biological systems research — but couldn’t put his finger on why, although he had a slowly growing interest in theology. That feeling increased during the first year of his postdoc, when he started writing for *Naturejobs*. Eventually, he left the postdoc for the divinity school at Duke University in Durham, North Carolina, where he is now in the last year of his master’s study. “Science is only one of many activities in which human beings engage,” says Jordan. “Don’t let it rule your life, and don’t think that it is the only plausible perspective on the world.”

For Amber Jenkins, who wrote a graduate journal in 2004, science communication was the alternative destination — although she took a circuitous path. For her PhD at Imperial College, London, she conducted particle physics research at Fermilab in Batavia, Illinois. While writing up her doctoral thesis, she worked as maternity cover for a *Nature* manuscript editor. That led to a job launching *Nature Photonics*. Jenkins eventually moved to San Francisco, California, to be closer to the photonics



Journal keepers: clockwise from top left, Moira Sheehan, Milan de Vries, Joanne Isaac, Tobias Langenhan, Sidney Omelon, Tshaka Cunningham.

the academic positions to which I applied,” she says (for advice on navigating the quagmire, see ‘Survival Tips’).

Jason Underwood wrote for *Naturejobs* in 2005, as a PhD student in molecular biology at the University of California, Los Angeles. After graduating, travelling to Alaska and teaching at Occidental College in Los Angeles, he found a position at Pacific BioSciences, a start-up that makes next-generation genetic sequencers in Menlo Park, California. Underwood likes his current work–life balance — he and his family live only seven miles away from the company, making for an easy commute. And in industry,

research community and her now husband. After another move and some consulting and freelance work, she found a full-time communications position at NASA's Jet Propulsion Lab (JPL) in Pasadena, California.

Moves aside, Jenkins's career path has proved satisfying. At JPL, she spends much of her time sharing climate science with the public by managing and creating content for NASA's Climate Change website. She has also worked with NASA's Orbiting Carbon Observatory mission, which, when launched in 2013, will measure carbon dioxide levels in the atmosphere. Jenkins became passionate about communicating science halfway through her PhD. But the UK native never expected to end up in the United States; nor did she envisage switching fields several times, from particle physics to applied physics and photonics to climate change.

WORK-LIFE, UNBALANCED

Many former postdoc and graduate journal writers reported that career choices and dilemmas had adversely affected their personal lives. Off-kilter work-life balances strained marriages, complicated parental aspirations and stymied the pursuit of other interests. "It's a cliché, but striking that balance is not easy," says Zach Lippman, who kept a postdoc journal while studying agriculture at the Hebrew University of Jerusalem in 2008 and is now

an assistant professor of plant biology at Cold Spring Harbor Laboratory in New York. "That balance is different for everyone. I'm still learning that balance, and it requires adjustment frequently," he says.

Jenkins struggled with disparities between her own career and her husband's, but now they finally live in the same place: the San Francisco Bay Area in California. However, each has a long commute. "If you both have specialties, it's damned hard to find jobs in the same place," says Jenkins. Bouncing between jobs, continents and aspirations was sometimes tough, she says. "Having to accept that part of growing and changing and living your dreams means giving up on other dreams, and moving on from people you care about, was the toughest part of my training. Living thousands of miles from home was, at times, lonely and difficult."

For Langenhan, pursuing academia meant distance from his wife — who had an established business career in Germany — while he spent five years earning a PhD in Oxford. "It was tough," he says. "We travelled back and forth every two or three weeks." Their partnership survived the strain, but others were not so fortunate.

Tshaka Cunningham wrote for *Nature-jobs* in 2004, while a PhD student in virology at Rockefeller University in New York. He moved to Paris in 2005 for a fellowship at the Pasteur Institute, which put pressure on his

first marriage. It eventually collapsed. He took another fellowship, at the US National Institutes of Health in Bethesda, Maryland, and married again in 2008. Wanting to avoid moving his family around, he switched to the other side of the bench as a scientific programme manager for the US Department of Veterans Affairs in nearby Washington DC. Although he misses bench work, Cunningham is still involved in academia through an adjunct position teaching molecular biology at Howard University in Washington DC.

"The balance is different for everyone. I'm still learning, and it requires adjustment frequently."

Motherhood delayed some careers, and permanently altered others. Sheehan faced the daunting challenge of having a second child mid-postdoc. She took three months off before returning to the bench.

"I always felt people were watching me closely to see how I handled it all, and it was hard to forgive myself for being human," she says. She first worried about handling a project — devising a novel system for culturing meiocytes in maize — that others had failed to complete. Would she, too, fall short? Then, when she cracked it, she thought that her answer couldn't be correct, because it had come too easily. "It was very hard to think clearly as I was always sleep-deprived," says Sheehan, adding that her current position in industry has freed her from constant funding worries and helped her carve out more family time.

Joanne Isaac started writing her journal in 2009 as a postdoc in climate change and biodiversity at James Cook University in Townsville, Australia, but gave up a full-time research job to focus on being a parent. With their toddler in tow, Isaac followed her husband to California, Colorado and, finally, back to Australia while he performed fieldwork for his own postdoc. Isaac's feminist sensibilities initially bristled at the arrangement, which ran counter to her career goals when she first started as a journal keeper. But now she has made peace with it. Although she works as a freelance writer, Isaac's main focus is on motherhood.

"I learnt how to be a stay-at-home mum," she says. "Not as easy as you'd think after being a working mum."

Despite the personal and professional challenges most journal keepers face, none regrets the journey thanks to its intellectual rewards. Even Jordan, who left science for theology, says he learnt a great deal along the way.

"On the one hand, I feel like my scientific training was a massive detour and took up a lot of time that I cannot get back," he says. "On the other hand, I've no doubt that things would have turned out very differently had I not taken the path through science research." ■

Paul Smaglik is a freelance writer in Milwaukee, Wisconsin.

SURVIVAL TIPS

Journal keepers' keys to success

- Many more doors can and will open to you than you can probably conceive of at the moment — some of them after graduate school.
- Don't lose sight of why you are pursuing a PhD or postdoc. You're not there to be a good analyser of a particular sequence of DNA or a good worker. You're there to be a good scientist.
- Present yourself confidently. Establish a trustworthy and nurturing professional network. Value your time, and use it accordingly. Maintain your sense of wonder, humour and self.
- Science is only one of many activities. Don't let its practice rule your life.
- Remember why you are doing this, so that during down times you can remind yourself of your goal. It may cheer you up and, ideally, give you motivation to continue.
- Explore career options outside academia. If a faculty job is your goal, have at least one alternative. Discuss your career plans with others.
- Study and explore what truly interests you, even if you think it might hold you back from the perfect job.
- Stay open to new ideas and potential futures. World markets can change rapidly, and can often negate a career path.
- Know your personality and have a keen grasp of your strengths, weaknesses and personal and professional goals when deciding on your best career option.
- Your supervisor can promote or ruin your career. You need him or her to write a good recommendation. Be sure that you trust your supervisor before agreeing to work in his or her lab; try talking to the lab's past graduate students and postdocs.
- It is probably easiest to get a job by doing a postdoc with a well-known, established researcher. Such a position, however, may make it more difficult to pursue truly innovative work.
- Observe the management system within which you are working, and how the systems and people around you operate.
- Never underestimate how competitive and political people can be.
- Turn on your swagger. Beware of sharks. If you're self-effacing or modest, train in assertiveness or take up kick-boxing. **P.S.**